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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,556

03/16/2006

Hidetsugu Motobe

YOS0024

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EXAMINER

ARNBERG, MEGAN C

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/559,556	<b>Applicant(s)</b> MOTOBE ET AL.	
	<b>Examiner</b> MEGAN ARNBERG	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/02/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The document JP 2000-154232 is cited on the IDS and used below in the rejection of the claims; therefore, the foreign document, supplied English abstract and the entire English computer translated document have been considered. It is cited in the Notice of References Cited and the entire translated document is attached.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arata et al. WO 00/37579 in view of Ongkosit (GB 2,362,037) in further view of Ekusa et al. (JP 2000-154232). As an English language translation of Arata et al., U.S. Pat. 6,558,797 will be referred to for the citations below. Also, as the English language translation of Ekusa et al., the computer generated translation will be referred to below.

Regarding claim 1: Arata et al. teaches an epoxy resin composition (abstract) comprising a halogenated epoxy resin (col. 5 lines 25-37), a phenol novolac resin, specifically VH-4170 produced by Dainippon Ink (col. 10 lines 62-67) and a curing accelerator (col. 2 line 59). Not disclosed are two epoxy resins in an amount of 80-100% by weight of the epoxy resin, the brominated epoxy resin in an amount of 75-97% by weight of the epoxy resin and a total bromine content of 18-30%. However, Ekusa et al. teaches a mixture of a brominated and non-brominated epoxy resins (abstract) the non-brominated epoxy made up of bisphenol A epoxy (para. 15) which is a reaction product of bisphenol A and epichlorohydrin, which calculated from the example (starting para. 14) are used in an amount of 89 weight % of the epoxy resin. The brominated epoxy is used in an amount of 20-80% of the epoxy resin (para. 8), which overlaps the claimed range. Arata et al. and Ekusa et al. are analogous art since they are both concerned with the same field of endeavor, namely epoxy resin compositions for preregs and printed wiring boards. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the epoxy resin mixture of Ekusa et al. with the composition of Arata et al. and would have been motivated to do

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so for such desirable properties as the ability to use less solvent for environmental concerns, as evidenced by Ekusa et al. (para. 7 and 9).

Arata et al. also does not teach the epoxy equivalent or the ratio of the n=0 component or the bromine content. However, Ongkosit teaches a similar composition wherein the preferable epoxy is DER530A80 (page 3 2<sup>nd</sup> paragraph), which has an epoxy equivalent of 427, an n=0 component of 28% and a bromine content of 23%. Arata et al. and Ongkosit are analogous art since they are both concerned with the same field of endeavor, namely epoxy resin compositions for prepregs and printed wiring boards. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the epoxy of Ekusa et al. with the composition of Arata et al. and would have been motivated to do so for such desirable properties as reduced board warpage and delamination.

Regarding claim 2: Arata et al. teaches the phenol is a reaction of bisphenol A and formaldehyde (col. 2 lines 41-45). Arata et al. uses VH-4170 produced by Dainippon Ink (col. 10 lines 62-67) which has a bifunctional component of 25%.

Regarding claims 3, 4, 7: Arata et al. teaches an inorganic filler, specifically silica (col. 5 lines 55-57).

Regarding claims 5, 6, 8-10: Arata et al. does not teach the prepreg or laminate made of the composition on a glass cloth. However, Ekusa et al. teaches a varnish with the composition and a solvent (para. 13), applying to a glass cloth/fabric and pre-drying/drying to B-stage before “piling up” on copper foil/forming a laminate and further curing (para. 15). At the time of the invention a person having ordinary skill in the art

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would have found it obvious to combine the prepreg of Ekusa et al. with the composition of Arata et al. and would have been motivated to do so since the glass fabric reinforces the resin to be used in a laminate.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEGAN ARNBERG whose telephone number is (571)270-3292. The examiner can normally be reached on Monday - Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO, Ph.D./  
Supervisory Patent Examiner, Art Unit 1796  
18-Jul-08

/M. A./  
Examiner, Art Unit 1796